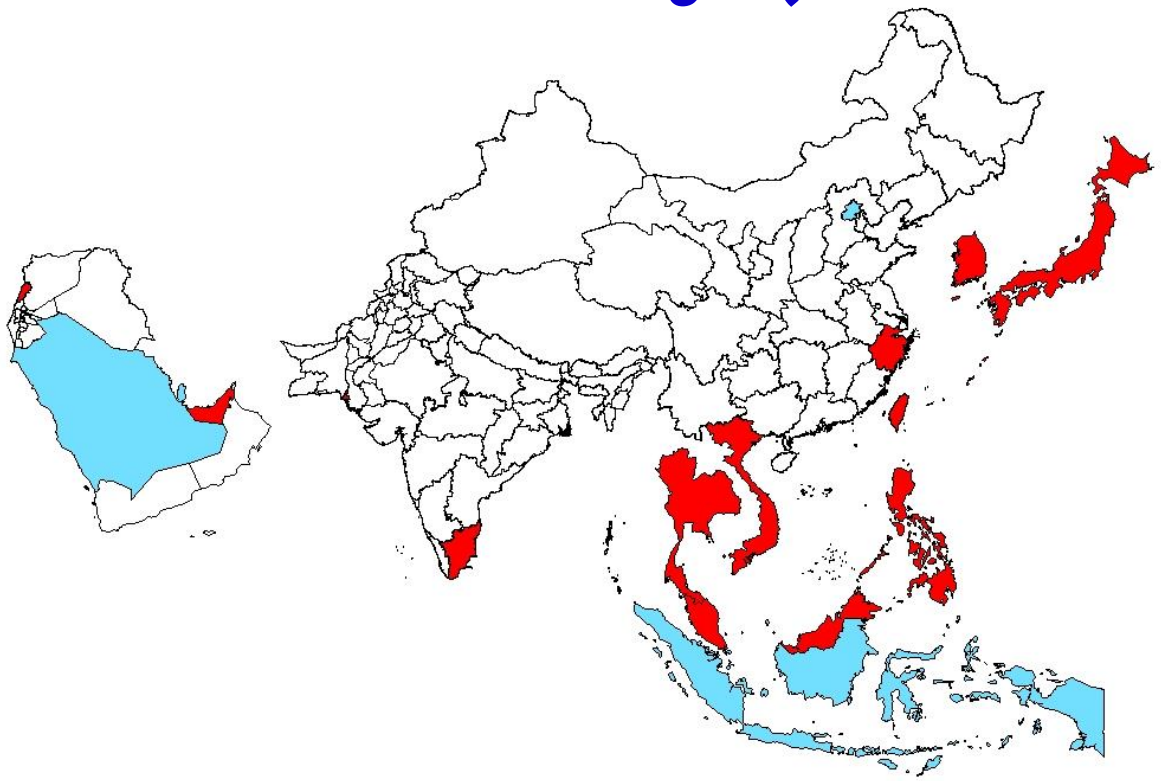
The Pan Asian Resuscitation Outcomes Study (PAROS)

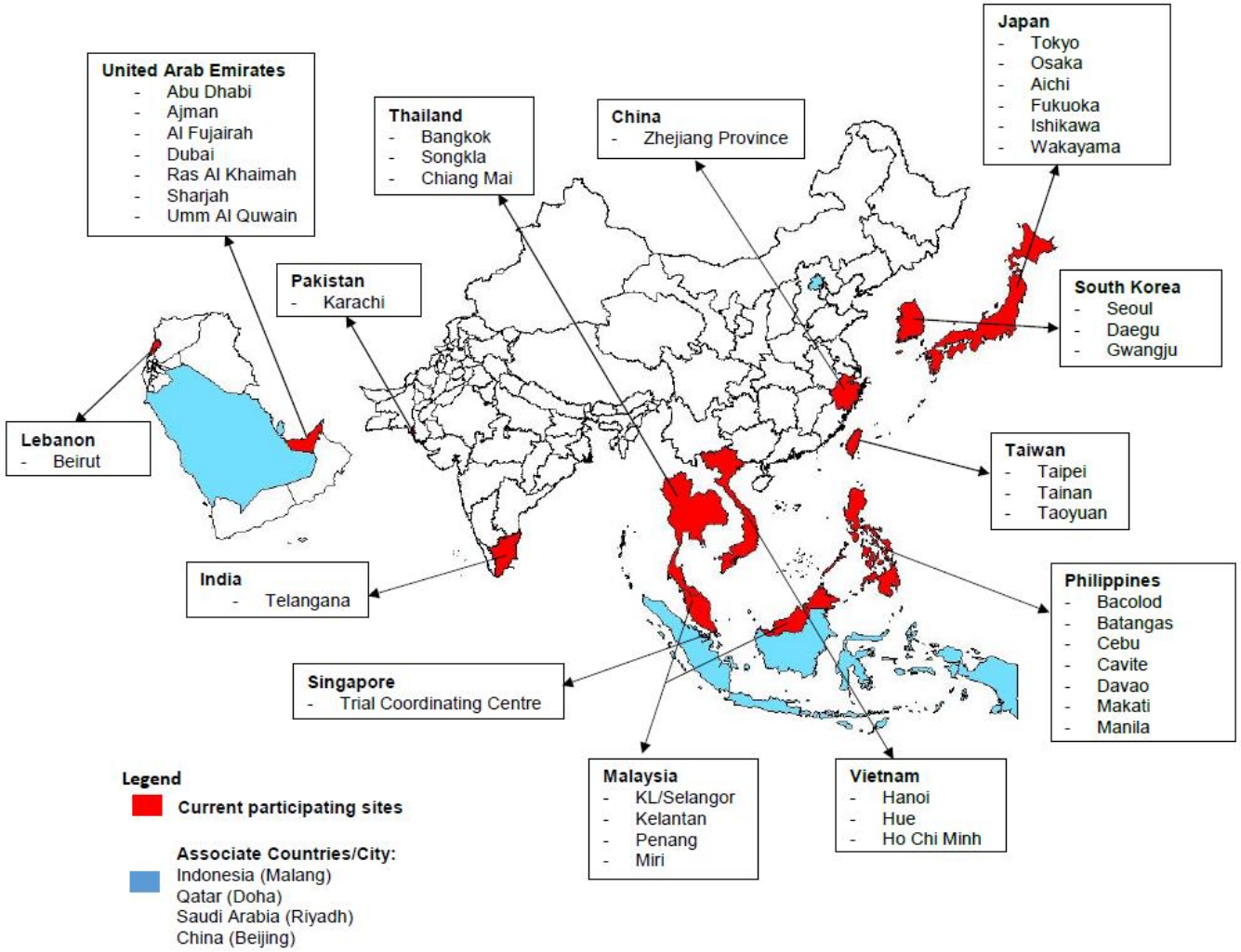


PAROS Clinical Research Network

History

- In 2010, Pan Asian Resuscitation Outcomes Study (PAROS) Clinical Research Network (CRN) was established in collaboration with Japan, Singapore, South Korea, Malaysia, Taiwan, Thailand, and UAE-Dubai.
- EMS in Asia is still developing
- Launching pad for development of EMS in Asia
- Aims to report the out-of-hospital cardiac arrests (OHCA) events and provide a better understanding of OHCA trends in Asia

Current Participating Countries

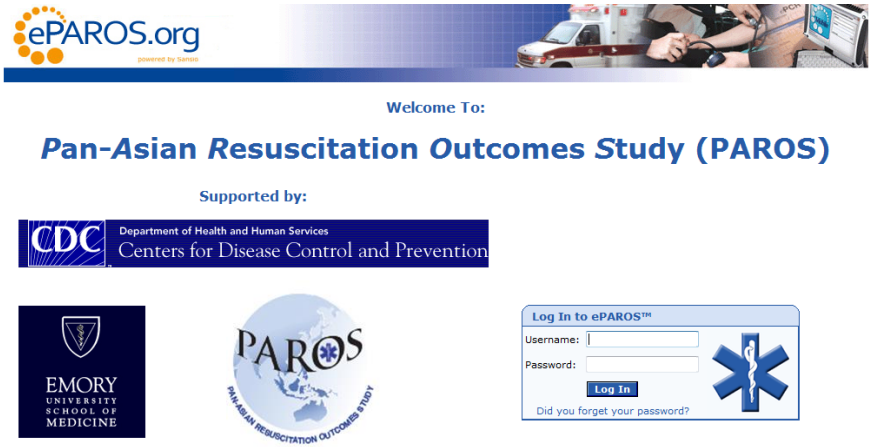


Methods of Data Contribution

There are two main methods of contributing data to PAROS CRN:

(i) Direct entry online via the online data capture system (https://eparos.org/) online training is conducted by the trial coordinating centre;

(ii) Export field entry which uses exported data from participating sites to auto-populate the PAROS registry.



http://www.scri.edu.sg/crn/pan-asian-resuscitation-outcomes-study-paros-clinical-research-network-crn/about-paros/

- Overview
- Asian Thoracic Oncology Research Group (ATORG)
- Asia-Pacific Hepatocellular Carcinoma (AHCC) Trials Group
- Family Medicine Research Network (FMRN)
- Metabolic Research Network
- Pan-Asian Resuscitation Outcomes Study (PAROS) Clinical Research Network (CRN)
  - About PAROS
  - Research
  - Members
  - PAROS Publications
  - Source Documents
  - PAROS Presentations
  - Upcoming Events
  - PAROS Newsletters
  - Event Photos
  - PAROS FAQ
  - Asian EMS Council
  - How to Reach Us

The PAROS CRN is a collaborative research group formed in 2010 by dedicated Pre-hospital and Emergency Care (PEC) providers conducting PEC research in the Asia-Pacific region. It promotes collaboration by bringing together like-minded individuals to share experiences and develop joint initiatives for the betterment of PEC.

Currently, research into PEC in the Asia-Pacific region is largely inadequate and poorly coordinated owing to the marked variations in Emergency Medical Services (EMS) systems and outcomes reporting. With PEC conditions such as Out-of-Hospital Cardiac Arrest (OHCA) being one of the leading causes of death worldwide, the dearth in the understanding of trends and research in PEC underscores the urgent need for more collaborative research and good-quality intervention trials in PEC.

PAROS CRN endeavours to improve outcomes from PEC across the Asia-Pacific region through the creation of a platform to support and stimulate research into effective strategies to improve survival in PEC. The ability to reach out to countries across the Asia-Pacific region means that the Network can adopt a multi-pronged strategy that targets key stakeholders such as the community, EMS and the hospitals in its vision to improve PEC outcomes. By offering practical ways of monitoring and meaningful measurement of PEC outcomes, PAROS CRN has an enormous potential to contribute significantly to PEC research, regardless of whether they are epidemiological studies or clinical trials. As a first step, PAROS CRN has identified OHCA as one of its main thrusts. The Network will gather valuable information on OHCA and deepen the understanding of the EMS systems in the region to devise strategies that improve survival. An IRB master template of an OHCA study initiated by A/Prof Marcus Ong can be found here.

Mission

To improve outcomes from Pre-hospital and Emergency Care across the Asia-Pacific region by promoting high quality research into resuscitation

Vision

Improving outcomes from Pre-hospital and Emergency Care across the Asia-Pacific region

Value to Singapore and the Region

PAROS CRN endeavours to answer important questions for the development and revisions of Pre-hospital and Emergency Care (PEC) policies. This research has a major social value as it aims to improve outcomes from

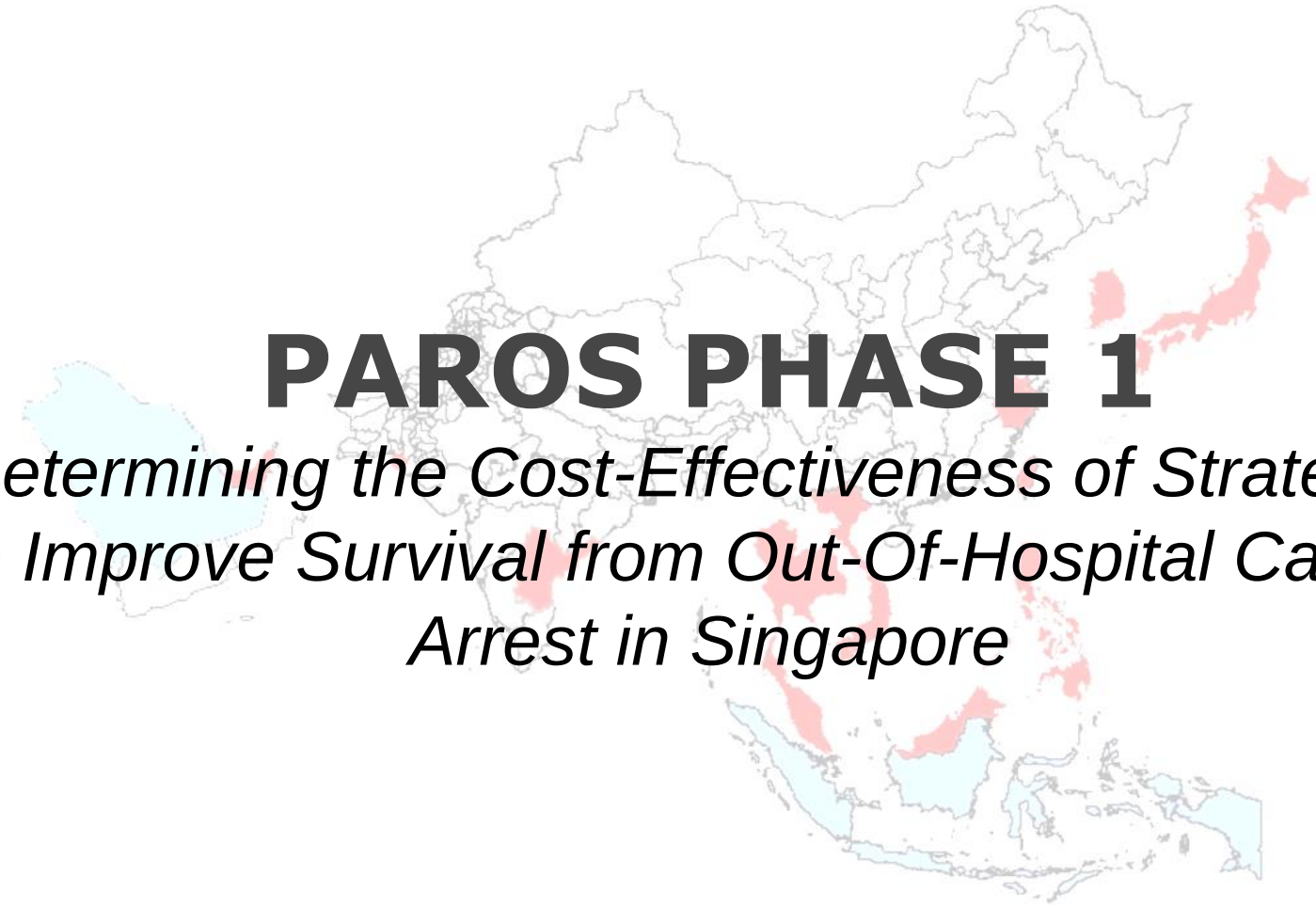
PAROS variables–EMS

Variable	Core	Non-Core
Emergency Medical Services (EMS) agency		
Mode of transport	●	
Date of incident	●	
Location of incident *(optional)*		●
Location type		●
Date of birth / Age	●	
Gender	●	
Race *(optional)*		●
Medical history		●
Time call received at dispatch centre	●	
Time first responder dispatched		●
Time ambulance dispatched		●
Time first responder arrived at scene		●
Time ambulance arrived at scene	●	
Time EMS arrived at patient side	●*	
Time ambulance left scene	●	
Time ambulance arrived at ED	●	
Estimated time of arrest		●
Arrest witnessed by	●	
Bystander CPR	●	
First CPR initiated by		●
Bystander AED applied		●
Resuscitation attempted by EMS / Private ambulance	●	
First arrest rhythm	●	
Time CPR started by EMS / Private ambulance		●
Time AED applied by EMS / Private ambulance		●
Pre-hospital defibrillation	●	
Defibrillation performed by		●
Mechanical CPR device used by EMS / Private ambulance		●
Prehospital advanced airway		●
Prehospital drug administration		●
Return of spontaneous circulation at scene / en-route	●	
CPR discontinued at scene / en-route		●
Final status at scene	●	
Cause of arrest *(only for cases pronounced dead at scene by EMS)*	●	
Level of destination hospital		●
Destination hospital		●
Patient's status at ED arrival	●	

Each country would declare whether #13 and/or #14 would be core to them and they will be bound by this expectation.

PAROS variables–ED

Variable	Core	Non-Core
Hospital [Emergency Department (ED)]		
Date of arrival at ED	●	
Time of arrival at ED		●
Patient status on arrival at ED - Pulse and/or Breathing		●
Cardiac rhythm on arrival at ED		●
ED defibrillation performed		●
Mechanical CPR device used at ED		●
Advanced airway used at ED		●
Drug administered at ED		●
Return of spontaneous circulation at ED	●	
Emergency PCI performed		●
Emergency CABG performed		●
Hypothermia therapy initiated		●
ECMO therapy initiated		●
Cause of arrest	●	
Reason for discontinuing CPR at ED		●
Outcome of patient	●	
Patient status	●	
Date of discharge or death		●
Patient neurological status on discharge or at 30th day post-arrest		●
EQ-5D Health Dimensions - Mobility		●
EQ-5D Health Dimensions - Self-care		●
EQ-5D Health Dimensions - Usual activities		●
EQ-5D Health Dimensions - Pain/discomfort		●
EQ-5D Health Dimensions - Anxiety/depression		●
EQ-5D Visual Analog Scale (VAS)		●



PAROS PHASE 1

Determining the Cost-Effectiveness of Strategies to Improve Survival from Out-Of-Hospital Cardiac Arrest in Singapore

PAROS Phase 1

- A prospective, international, multi-center cohort study of OHCA across the Asia-Pacific.
- Provides a model for population based data collection which can aid quality improvement to increase survival
- Provides a baseline to measure the effect of subsequent interventions such dispatcher-assisted CPR and Public Access Defibrillation in this region.

Publications (>10)

Journal of the F

EMERGENCY MEDICAL SERVICES/ORIGINAL RESEARCH

Modifiable Factors Associated With Survival After Out-of-Hospital Cardiac Arrest in the Pan-Asian Resuscitation Outcomes Study

Hideharu Tanaka, MD; Marcus E. H. Ong, MBBS*; Fahad J. Siddiqui, MBBS; Matthew H. M. Ma, MD; Hiroshi Kaneko, MBA; Kyung Won Lee, MD; Kentaro Kajino, MD; Chih-Hao Lin, MD; Han Nee Gan, MBBS; Pairoj Khruekarnchana, MD; Omer Alsakaf, PhD; Nik H. Rahman, MBCHB; Nausheen E. Doctor, MBBS; Pryseley Assam, PhD; Sang Do Shin, MD; for the PAROS Clinical Research Network†

*Corresponding Author. E-mail: marcus.ong.e.h@sgh.com.sg.

ORIGINAL

Variat
out-of
setting

Chih-Hac
Sarah Ab
Tatsuya
Matthew

Study objective: The study aims to identify modifiable factors associated with improved out-of-hospital cardiac arrest survival among communities in the Pan-Asian Resuscitation Outcomes Study (PAROS) Clinical Research Network: Japan, Singapore, South Korea, Malaysia, Taiwan, Thailand, and the United Arab Emirates (Dubai).

Methods: This was a prospective, international, multicenter cohort study of out-of-hospital cardiac arrest in the Asia-Pacific. Arrests caused by trauma, patients who were not transported by emergency medical services (EMS), and pediatric out-of-hospital cardiac arrest cases (<18 years) were excluded from the analysis. Modifiable out-of-hospital factors (bystander cardiopulmonary resuscitation [CPR] and defibrillation, out-of-hospital defibrillation, advanced airway, and drug administration) were compared for all out-of-hospital cardiac arrest patients presenting to EMS and participating hospitals. The primary outcome measure was survival to hospital discharge or 30 days of hospitalization (if not discharged). We used multilevel mixed-effects logistic regression models to identify factors independently associated with out-of-hospital cardiac arrest survival, accounting for clustering within each community.

Results: Of 66,780 out-of-hospital cardiac arrest cases reported between January 2009 and December 2012, we included 56,765 in the analysis. In the adjusted model, modifiable factors associated with improved out-of-hospital cardiac arrest outcomes included bystander CPR (odds ratio [OR] 1.43; 95% confidence interval [CI] 1.31 to 1.55), response time less than or equal to 8 minutes (OR 1.52; 95% CI 1.35 to 1.71), and out-of-hospital defibrillation (OR 2.31; 95% CI 1.96 to 2.72). Out-of-hospital advanced airway (OR 0.73; 95% CI 0.67 to 0.80) was negatively associated with out-of-hospital cardiac arrest survival.

Conclusion: In the PAROS cohort, bystander CPR, out-of-hospital defibrillation, and response time less than or equal to 8 minutes were positively associated with increased out-of-hospital cardiac arrest survival, whereas out-of-hospital advanced airway was associated with decreased out-of-hospital cardiac arrest survival. Developing EMS systems should focus on basic life support interventions in out-of-hospital cardiac arrest resuscitation. [Ann Emerg Med. 2017;■:1-10.]

Please see page XX for the Editor's Capsule Summary of this article.

0196-0644/$-see front matter

http://dx.doi.org/10.1016/j.annemergmed.2017.07.484

PAROS PHASE 2

International Multi-Center Controlled Trial of Dispatcher-Assisted Cardio-Pulmonary Resuscitation Intervention Package

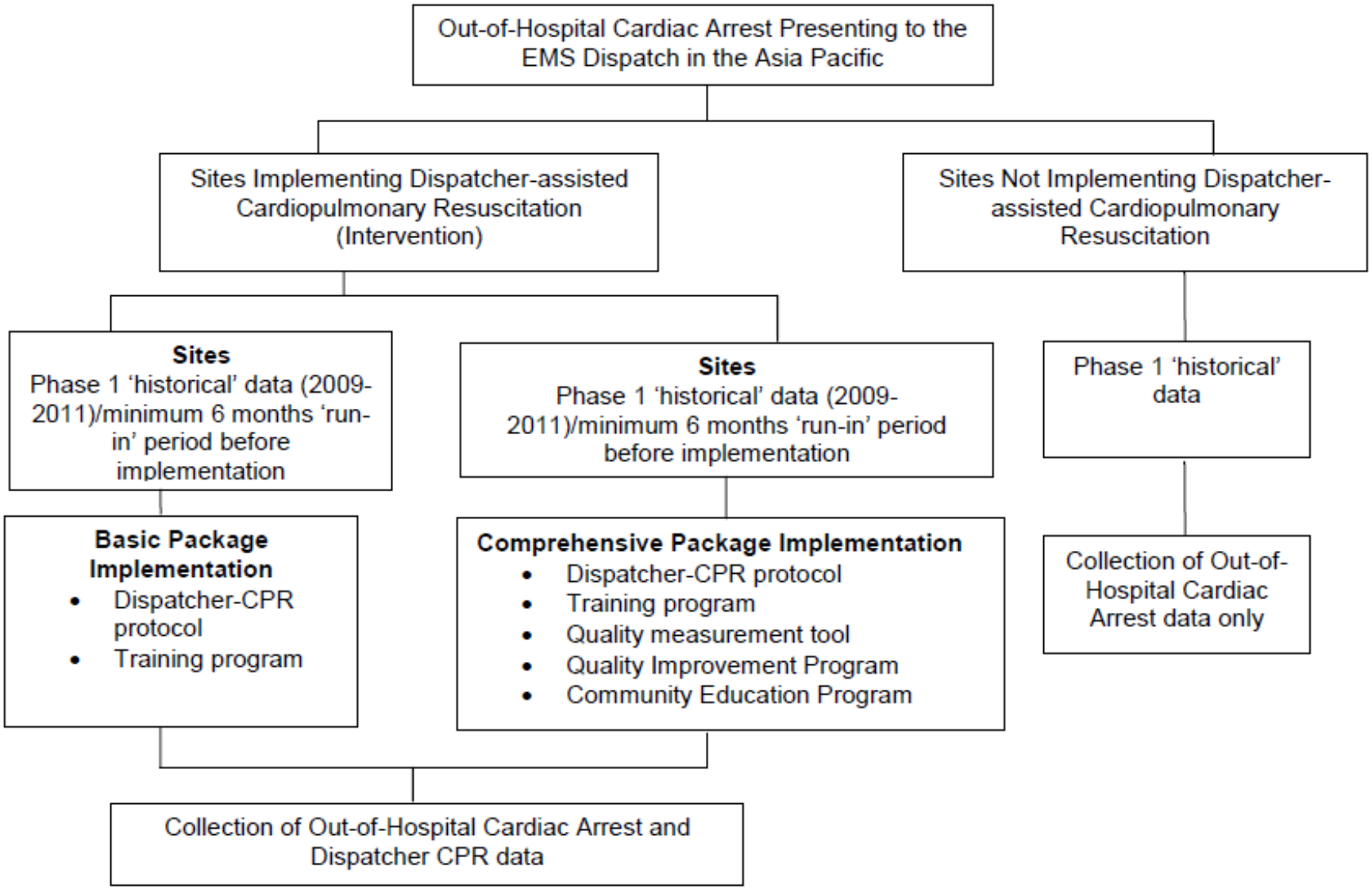
Introduction

- Difficulties in improving Bystander CPR (BCPR) rates
- Effective Dispatcher Assisted Cardio-Pulmonary Resuscitation (DA-CPR)
  - Increase survival
  - Double BCPR rates
- But implementation is currently rare in Asia

Objectives

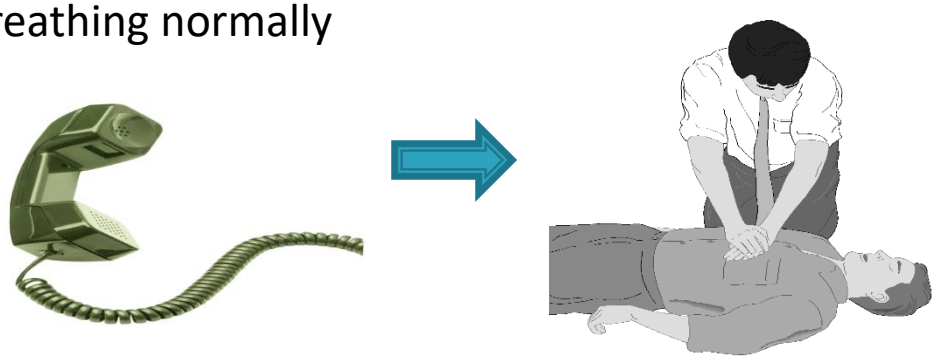
- To assess the impact of DA-CPR package on survival for OHCA and bystander CPR rates compared to community and historical matched controls in the Asia-Pacific

Study Outline



Cardiac arrest identification and Dispatcher-assisted CPR

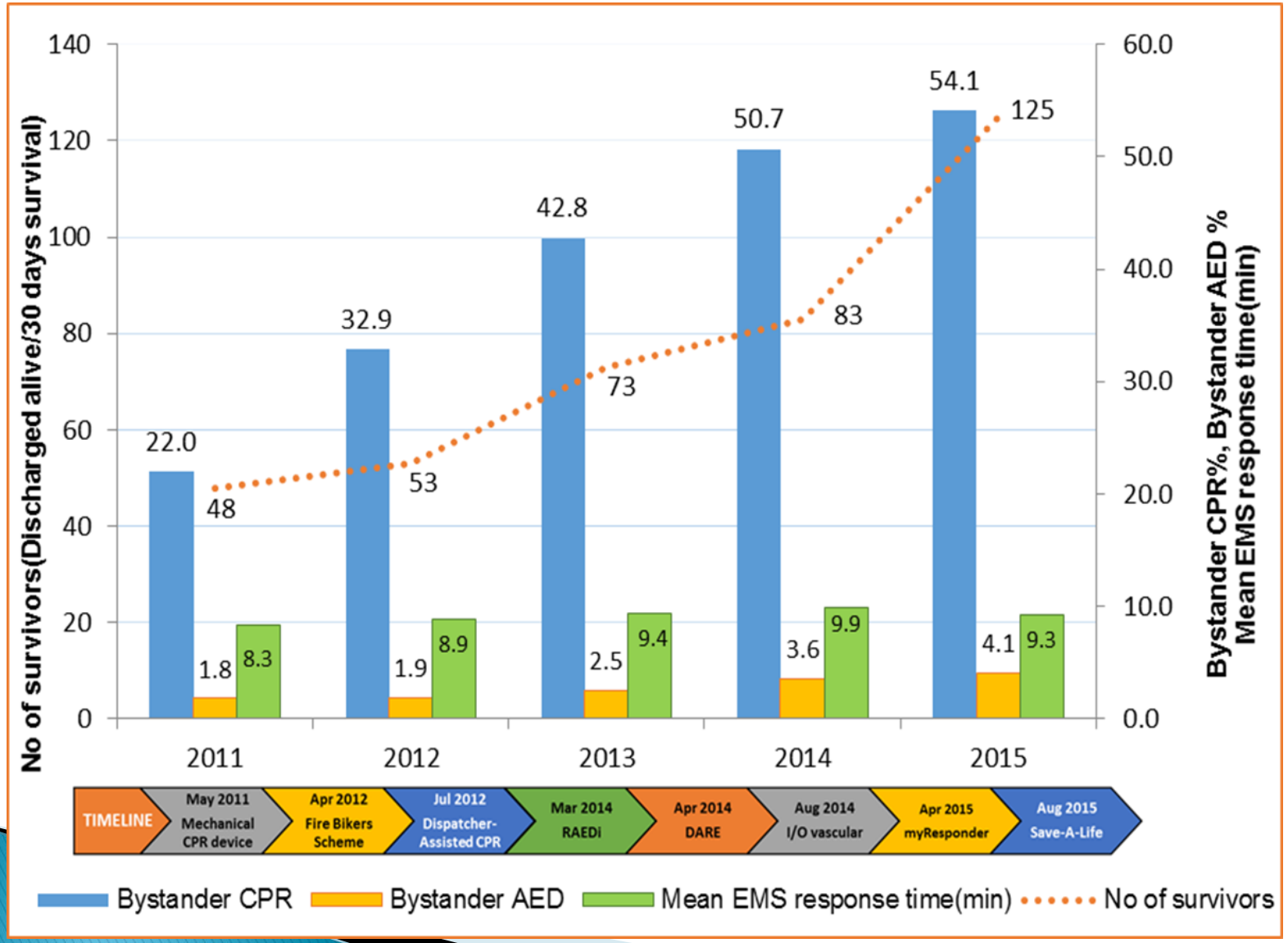
- Not Conscious/Responsive
- Not Breathing normally



Count 1,2,3,4,5,6,7,8,9,10
100 compressions/min

Keep going until the help arrives

Progress in 5 years – S'pore



Challenges Faced

- PAROS Network
  - Participating countries would have to get ‘buy in’ from local hospitals and EMS agencies to contribute OHCA data
  - Each participating site is responsible for obtaining own ethics approval
  - Long process to develop a standardized case record form (CRF) and data dictionary
    - >1 year to finalise
  - Data sharing agreement
  - Funding: Each institution is responsible for obtaining funds for hiring manpower

Challenges Faced

- Singapore
  - Data collection and transcribing is time consuming
  - Backlog of data up to 2 years, currently finishing 2016 data
  - Human Biomedical Research Act
  - Moving towards electronic data merging
- Other countries e.g. Malaysia, Thailand, Philippines, India etc
  - Manpower
  - Insufficient funding
  - Lack of infrastructure/system
  - Translation of CRF for local paramedics/EMTs to collect data


ASIAN EMS
Asian EMS Counsil
PAROS EXCO MEETING
Apr 14th ~ Apr 15th, Songsil Hall

Thank you